Contents Volumes 122/123/124, September/October/November 1989

LINEAR SYSTEMS AND CONTROL

A Special Issue of
LINEAR ALGEBRA AND ITS APPLICATIONS

Special Editors: Paul A. Fuhrmann, Hidenori Kimura and Jan C. Willems

PREFACE 1

N. KRAVITSKY AND Z. WAKSMAN (Beer Sheva, Israel)
On Some Resultant Identities 3

RAIMUND OBER (Cambridge, England) AND DUNCAN MCFARLANE (Victoria, Australia)
Balanced Canonical Forms for Minimal Systems: A Normalized Coprime Factor Approach 23

TON GEERTS (Eindhoven, The Netherlands)
Continuity Properties of the Cheap-Control Problem Without Stability 65

AVRAHAM FEINTUCH (Beer Sheva, Israel)
Stabilization and Sensitivity for Eventually Time-Invariant Systems 105

M. KOCIĘCKI AND K. M. PRZYŁUSKI (Warszawa, Poland)
On the Number of Controllable Linear Systems over a Finite Field 115

BOSTWICK F. WYMAN (Columbus, Ohio), MICHAEL K. SAIN (Notre Dame, Indiana), GIUSEPPE CONTE (Genova, Italy) AND ANNA-MARIA PERDON (Padua, Italy)
On the Zeros and Poles of a Transfer Function 123

CIPRIAN FOIAS (Bloomington, Indiana) AND ALLEN TANNENBAUM (Minneapolis, Minnesota)
On the Parametrization of the Suboptimal Solutions in Generalized Interpolation 145

CÉDRIC J. DEMEURE (Boulder, Colorado)
Fast *QR* Factorization of Vandermonde Matrices 165

MAURO BISIACCO (Udine, Italy), ETTORE FORNASINI AND GIOVANNI MARCHESINI (Padova, Italy)
Dynamic Regulation of 2D Systems: A State-Space Approach 195

J. W. POLDERMAN (Enschede, The Netherlands)
Adaptive LQ Control: Conflict Between Identification and Control 219

Table of Contents continued

S. Longhi (Ancona, Italy), A. Perdon (Padova, Italy) and G. Conte (Genova, Italy)
Geometric and Algebraic Structure at Infinity of Discrete Time Linear Periodic Systems 245

Edmond A. Jonckheere, Jyh-Ching Juang and Leonard M. Silverman (Los Angeles, California)
Spectral Theory of the Linear-Quadratic and H^∞ Problems 273

A. C. Antoulas (Houston, Texas) and B. D. O. Anderson (Canberra, Australia)
On the Problem of Stable Rational Interpolation 301

U. Helmke (Regensburg, West Germany), D. Hinrichsen and W. Manthey (Bremen, West Germany)
A Cell Decomposition of the Space of Real Hankel Matrices of Rank $\leqslant n$ and Some Applications 331

M. S. Livsic and Y. Avishai (Beer Sheva, Israel)
A Study of Solitonic Combinations Based on the Theory of Commuting Non-Self-Adjoint Operators 357

N. Karcanias and C. Giannakopoulos (London, England)
Necessary and Sufficient Conditions for Zero Assignment by Constant Squaring Down 415

J. Gamst (Bremen, West Germany) and K. Hoechsmann (Vancouver, Canada)
An Invariance Property of Hankel Forms 447

Rob Luesink and Henk Nijmeijer (Enschede, The Netherlands)
On the Stabilization of Bilinear Systems via Constant Feedback 457

Harald K. Wimmer (Würzburg, West Germany)
Bezoutians of Polynomial Matrices and Their Generalized Inverses 475

D. Hinrichsen (Bremen, West Germany) and D. Prätzel-Wolters (Kaiserslautern, West Germany)
A Jordan Canonical Form for Reachable Linear Systems 489

L. Pandolfi (Torino, Italy)
Controllability Properties of Perturbed Distributed Parameter Systems 525

Zdeněk Vavřín (Prague, Czechoslovakia)
Remarks on Complexity of Polynomial and Special Matrix Computations 539

Table of Contents continued

EDMOND JONCKHEERE AND CHINGWO MA (Los Angeles, California)
Recursive Partial Realization from the Combined Sequence of Markov Parameters and Moments 565

MICHEL MALABRE (Nantes Cedex, France)
Generalized Linear Systems: Geometric and Structural Approaches 591

UWE HELMKE (Regensburg, West Germany)
Rational Functions and Bezout Forms: A Functorial Correspondence 623

ANDERS RANTZER (Stockholm, Sweden)
Equivalence Between Stability of Partial Realizations and Feedback Stabilization—Applications to Reduced Order Stabilization 641

J. W. NIEUWENHUIS (Groningen, The Netherlands)
Modern Linear Systems Theory 655

TOSHIHARU SUGIE (Kyoto, Japan) AND TOSHIRO ONO (Osaka, Japan)
On Doubly Coprime Factorizations 681

KENJI SUGIMOTO AND YUTAKA YAMAMOTO (Kyoto, Japan)
On Successive Pole Assignment by Linear-Quadratic Optimal Feedbacks 697

KAZUO MUROTA (Tokyo, Japan)
Some Recent Results in Combinatorial Approaches to Dynamical Systems 725

R. W. BROCKETT (Cambridge, Massachusetts)
Least Squares Matching Problems 761

E. ROGERS AND D. H. OWENS (Glasgow, Scotland)
Axis Positivity and the Stability of Linear Multipass Processes 779

D. J. CLEMENTS (Kensington, Australia) AND
K. GLOVER (Cambridge, England)
Spectral Factorization via Hermitian Pencils 797

YUVAL BISTRITZ (Tel-Aviv, Israel), HANOCH LEV-ARI AND
THOMAS KAILATH (Stanford, California)
Immittance- Versus Scattering-Domain Fast Algorithms for Non-Hermitian Toeplitz and Quasi-Toeplitz Matrices 847

SHINJI HARA AND HAK-KYUNG SUNG (Tokyo, Japan)
Constraints on Sensitivity Characteristics in Linear Multivariable Discrete-Time Control Systems 889

Table of Contents continued

M. Deistler (Vienna, Austria) and Liqun Wang (Hannover, West Germany)
The Common Structure of Parametrizations for Linear Systems 921

L. E. Faibusovich (Cambridge, Massachusetts)
QR-Type Factorizations, the Yang-Baxter Equation, and an Eigenvalue Problem of Control Theory 943

Marc Van Barel and Adhemar Bultheel (Leuven, Belgium)
A Canonical Matrix Continued Fraction Solution of the Minimal (Partial) Realization Problem 973

P. Rocha and J. C. Willems (Groningen, The Netherlands)
State for 2-D Systems 1003

U. Helmke (Regensburg, West Germany) and P. A. Fuhrmann (Beer Sheva, Israel)
Bezoutians 1039

Author Index 1099